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[\[PDF \(2005K\)\]](#) [\[References\]](#)**Application of microtremor array exploration for seismic retrofit strategy learnt from the damages of the electric power facilities during recent large earthquakes****—A case study of applicability for existing electrical substation—**Hiroaki Sato¹⁾, Kiyotaka Sato¹⁾, Sadanori Higashi¹⁾ and Yoshiharu Shumuta¹⁾

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ABSTRACT In order to reduce the bushing damage that was often experienced in electrical substation during large earthquakes in recent years, we investigated the applicability of microtremor array exploration in the existing electrical substation for making the prior strategy of seismic retrofit.

First, we conducted microtremor array exploration on both cutting soil and embankment in the existing electrical substation where some geophysical surveys had already been carried out. As a result, it was shown to be able to apply microtremor array exploration to the S-wave velocity structure survey in the existing electrical substation. Second, an applicability of microtremor array exploration to inclined basement structure was showed from the numerical simulation using various subsurface models that imitate reclaimed ground in the existing electrical substation.

The ground amplification characteristics estimated from S-wave velocity structure by using microtremor array exploration brings us valuable information for making the prior strategy of seismic retrofit. Therefore, it is necessary to use microtremor array exploration positively for the mitigation of electrical substation damages during a large earthquake.

Key words: microtremor array exploration, bushing, electrical substation, S-wave velocity structure, seismic retrofit

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